Effect of U.S./Russia Highly Enriched Uranium Agreement

2000

Information Date: December 31, 2000

Report to Congress Under Section 3112 (b) (10) of the USEC Privatization Act

Executive Summary:

The HEU Agreement provides for the United States to purchase from the Russian Federation 500 metric tons of highly enriched uranium (HEU) converted to low enriched uranium over twenty years (1993-2013). HEU from dismantled nuclear warheads is blended down by Russia to low enriched uranium under the terms of this Agreement. The HEU Agreement serves mutual U.S. and Russian interests. It is a key element of U.S. nonproliferation policy and provides a structured basis for Russia to participate in U.S. nuclear fuel markets.

Pursuant to Section 3112 (b) (10) of the USEC Privatization Act, this report meets the requirement by the President to report to Congress each year on the effect the low enriched uranium delivered under the terms of the HEU Agreement is having on the domestic mining, conversion, and enrichment industries and on the operation of the gaseous diffusion plants (which USEC operates under a lease agreement with DOE). To meet an additional requirement of the Privatization Act, this report presents the actions taken or proposed to be taken by the President to prevent or mitigate any material adverse impact on these industries or any loss of employment at the gaseous diffusion plants as a result of the Agreement.

Two events of 2000 had direct implications to the implementation of the HEU Agreement. First, Russia temporarily halted deliveries of low enriched uranium in May 2000 as NOGA, a non-nuclear Swiss company, attempted to attach Russian government assets within the U.S. in payment of various loans and goods delivered by NOGA to the Russian Federation. The impasse was resolved when President Clinton, to meet national security and foreign policy imperatives, signed Executive Order 13159 on June 22, 2000 which excluded payments transferred to the Government of the Russian Federation under the HEU Agreement from being blocked by lawsuits. Second, the U.S. and Russian executive agents for the HEU Agreement negotiated a proposed new amendment to the HEU Implementing Contract that would establish a market-based pricing mechanism for post-2001 deliveries. The previous amendment called for a fixed contract price plus escalation for enrichment services purchased through 2001. The proposed amendment also would address the purchase of the remaining 8.7 metric tons of HEU that was not delivered in 1999, and potentially add an additional 3.0 million SWU (a measure of work required to enrich uranium) of commercial origin that would be purchased by USEC over a three-year period at a discounted price.

The uranium, conversion and enrichment services markets continue to experience downward pressure on prices and depressed market conditions. U.S. producers, as well as some foreign, have lowered or delayed production plans. Deliveries under the HEU Agreement have been one of many contributing factors that have adversely impacted the domestic uranium enrichment industry. Other factors include exchange rates and corporate short term strategies focused on

market share penetration at the expense of profits and foreign competition. The domestic uranium and conversion industries have been less impacted by the HEU Agreement because the vast majority of the natural uranium component deliveries to date have either been purchased by the U.S. Government or returned to Russia and, therefore, removed from the market. A larger contributing factor to the domestic uranium and conversion industries market decline has been the oversupply of uranium inventories from utilities and suppliers, including the substantial sales of uranium from USEC that was initially transferred by the Department of Energy during the USEC privatization process.

Over the past year, the Department has been working diligently to assess these vital industries and work with Congress and private industry to bring about change for the better and a path forward to continued reliable, competitive and assured U.S. supply of nuclear fuel services. To mitigate the effects of a possible disruption in the Nation's supply of enriched uranium, Energy Secretary Richardson announced in October 2000 the Administration's plans to build an advanced technology demonstration enrichment plant in Portsmouth, Ohio as well as the placement of the Portsmouth Gaseous Diffusion Plant on standby for a five-year period. In addition to enhancing energy security, these actions will preserve jobs and provide the U.S. with a new enrichment technology needed to meet its national needs and international commitments.

The Department also continues to review the issues impacting the uranium mining and conversion industries. The results of the Department's review will be contained in the *Report to Congress on Maintenance of Viable Domestic Uranium, Conversion, and Enrichment Industries*.

Introduction:

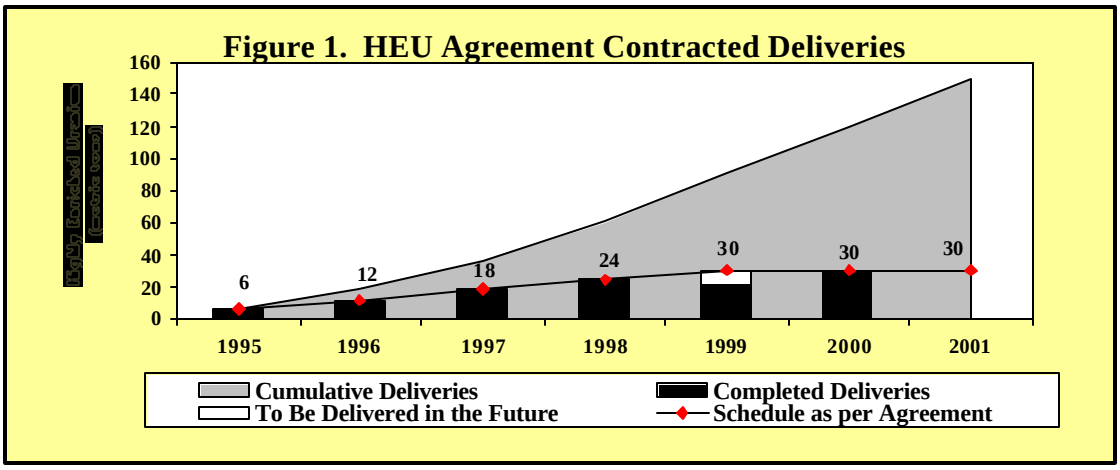
The *Agreement Between the Government of the United States and the Government of the Russian Federation Concerning the Disposition of Highly Enriched Uranium Extracted from Nuclear Weapons* ("HEU Agreement") was signed on February 13, 1993. The HEU Agreement provides for the United States to purchase from the Russian Federation 500 metric tons of highly enriched uranium converted to low enriched uranium over twenty years (1993-2013). The highly enriched uranium is blended down to low enriched uranium under the terms of this Agreement.[1]

The HEU Agreement is a key element of U.S. nonproliferation policy and serves mutual U.S. and Russian interests. The HEU Agreement provides incentives for Russia to take fissile material from their nuclear warheads and blend them into low enriched uranium for use and sale as commercial reactor fuel. The revenue stream from the Agreement helps provide an ongoing incentive for blending down Russia's highly enriched uranium weapons inventory. The HEU Agreement also provides a structured basis for Russia to participate in uranium markets. In the absence of the Agreement, Russia could have incentives to sell more uranium and provide more centrifuge enrichment services on world markets that, as in the early 1990s, could depress prices without securing any nonproliferation benefit.

The quantities of highly enriched uranium downblended and delivered in each year compared to those planned for in the HEU Agreement through 2001 are shown in Figure 1. Of the 30 metric tons of highly enriched uranium that was scheduled to be downblended and delivered in 1999, 21.3 metric tons have been completed. Delivery of the remaining 8.7 metric tons (for the remaining 1999 deliveries) has not been finalized but is expected to be completed at a future date.[2] Deliveries of low enriched uranium from 30 metric tons of highly enriched uranium were delivered during 2000. However, those deliveries were interrupted when a non-nuclear, Swiss company named NOGA brought a lawsuit against Russia in May 2000. The lawsuit, filed in a U.S. court tried to attach Russian government assets within the U.S. in payment of various loans and goods delivered by NOGA to the Russian Federation during 1991 and 1992. An Executive Order 13159 was issued by President Clinton on June 22, 2000, which pronounced that "...assets directly related to the implementation of the HEU Agreement may be subject to attachment, judgement, decree, lien, execution, garnishment, or other judicial process, thereby jeopardizing the full implementation of the HEU Agreements...are hereby blocked and may not be transferred, paid, exported, withdrawn, or otherwise dealt in." As a result of this Executive Order, deliveries of low

[1]The low enriched uranium being purchased by the United States under this HEU Agreement represents the equivalent of almost 400 million pounds of natural uranium and 92 million separative work units, enough to satisfy about 9 years of demand for uranium and separative work units in the United States. Because the uranium is in the form of natural uranium hexafluoride, it also represents over 150,000 metric tons of conversion services.

[2]This remaining quantity reflects the interruption of deliveries from Russia in 1998 due to complications arising from the natural uranium feed and other issues.



enriched uranium under the HEU Agreement were appropriately licensed and promptly resumed. Deliveries of low enriched uranium from 30 metric tons of highly enriched uranium are scheduled to continue from 2001-2012, and from 20 metric tons in 2013 (to reach 500 metric tons total).

A contract implementing the HEU Agreement was signed on January 14, 1994, with USEC Inc.'s predecessor, the United States Enrichment Corporation (USEC), acting as executive agent on behalf of the United States, and Techsnabexport (Tenex) representing the Russian Federation. Tenex is majority owned by the Russian Ministry of Atomic Energy.

On April 26, 1996, the President signed the USEC Privatization Act (Privatization Act) P.L. 104-134, (42 U.S.C. 2297h), which addressed several issues in connection with the HEU Agreement. First, the Privatization Act directed the Department of Energy (DOE) to purchase the uranium feed component contained in the 1995 and 1996 deliveries (Section 3112(b)(1) and (2)).[3] Second, the Privatization Act set quotas for sales of the natural uranium feed component into the U.S. commercial nuclear fuel market (Section 3112(b)(5)). Finally, the Privatization Act established a monitoring and reporting requirement. Section 3112 (b) (10) of the Privatization Act requires the President to:

1. Monitor the performance of the U.S. executive agent (USEC) under the Agreement.

2. Report to Congress each year on the effect the low enriched uranium delivered under the terms of the HEU Agreement is having on the domestic mining, conversion, and enrichment industries and on the operation of the gaseous diffusion plants (which USEC operates under a lease agreement with DOE) including actions taken or proposed to be taken by the President

[3]In addition, Public Law 105-277 provided $325 million to purchase from Russia the uranium feed component contained in the 1997 and 1998 deliveries.

to prevent or mitigate any material adverse impact on these industries or any loss of employment at the gaseous diffusion plants as a result of the Agreement.

The purpose of this report is to respond to the second requirement above by analyzing the effect of the deliveries under the HEU Agreement on the nuclear fuel industries and employment at the gaseous diffusion plants and by describing actions taken or proposed to be taken to prevent or mitigate any material adverse impact.

This report concludes that there has been an adverse impact on the domestic uranium enrichment industry caused, in part, by the deliveries under the HEU Agreement, as well as by other factors such as exchange rates, corporate short term strategies focused on market share penetration at the expense of profits, and foreign competition. The report further concludes that the domestic uranium and conversion industries have been less impacted by the HEU Agreement because the vast majority of the natural uranium component deliveries to date have either been purchased by the U.S. Government or returned to Russia and, therefore, removed from the market.

A larger contributing factor to the domestic uranium and conversion industries market decline has been the oversupply of uranium inventories from utilities and suppliers, including the substantial sales of uranium from USEC that was initially transferred by the Department of Energy during the USEC privatization process.

Implementation of the HEU Agreement:

This section of the report will address the actual implementation of the HEU Agreement. Specifically, it will provide the current status of deliveries under the HEU Agreement, show how those deliveries relate to quantities of Russian uranium allowed to be sold into the U.S. as per quotas defined in the USEC Privatization Act, and other events that impacted the HEU Agreement during 2000.

Current Status of Deliveries

Table 1 shows the number of warheads dismantled, quantities of highly and low enriched uranium contained in the warheads, and their equivalent natural uranium, conversion services, and separative work units delivered to date.

Table 1. Status of Deliveries Under the HEU Agreement

Contracted Year	Dismantled Warheads	Highly Enriched Uranium (MTU)	Low Enriched Uranium (MTU)	Natural UF_6 Feed Component (Million lbs. U_3O_8(e))	Natural UF_6 Conversion Component (Million kgU)	Separative Work Units (SWU) (Million SWU)
1995	244	6.1	186.0	4.8	1.8	1.1
1996	480	12.0	371.0	9.5	3.7	2.2
1997 Delivered in CY1997	536	13.4	358.5	10.2	3.9	2.4
1997 Delivered in CY1998	184	4.6	121.5	3.5	1.3	0.8
1998 Delivered in CY1998	580	14.5	450.0	11.5	4.4	2.7
1998 Delivered in CY1999	380	9.5	274.5	7.4	2.9	1.8
1999 Delivered in CY1999	588	14.7	444.0	11.7	4.5	2.7
1999 Delivered in CY2000	264	6.6	180.0	5.0	1.9	1.2
1999 Delivery (dates to be determined)	348	8.7	–	--	--	--
2000 Delivered in CY2000	1,200	30	858	23.3	9.0	5.5

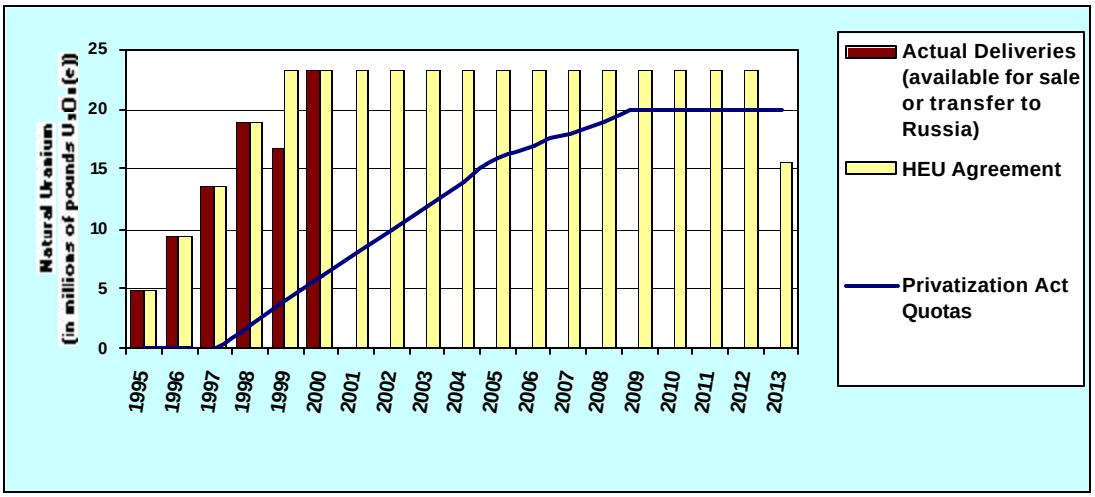
Quantities of Russian Uranium Sales under the HEU Agreement

Several points can be made from Figure 2. First, the actual deliveries of low enriched uranium made to USEC during 1999 fell short of the planned deliveries as defined in the HEU Agreement. The 1999 shortfall, which was caused in large part to the uranium feed issue, is expected to be

completed in the future. Secondly, the USEC Privatization Act quotas defined in Figure 2. show that Congress envisioned that the large quantities of deliveries from the HEU Agreement had to be gradually allowed to enter into the U.S. market over a long period of time. The gradual increases of quotas allowed into the U.S. over the term of the HEU Agreement reflect the anticipated shortfalls in uranium supply from primary production in future years. The uranium from the HEU Agreement is expected to play a vital role in filling the gap until new production can be brought on line.

The enrichment component deliveries under the HEU Agreement have offset the production of domestic uranium enrichment sales. However, in addition to the USEC Privatization Act quota limitations, actual sales of the natural uranium component deliveries from the HEU Agreement into the U.S. have been minimal because of (1) the U.S. Government purchase of the material from 1995 through 1998, (2) the shortfall in deliveries under the HEU Agreement due to the uranium feed issue, and (3) the shipment of the majority of the remaining natural uranium back to Russia.

Figure 2. Status of the Natural Uranium Feed Deliveries Under the HEU Agreement



Events Impacting the HEU Agreement During 2000

NOGA Lawsuit

One of the primary impediments to a smooth implementation of the HEU Agreement during 2000 occurred when a non-nuclear, Swiss company called NOGA brought a lawsuit against Russia in May, in a U.S. court. NOGA tried to attach Russian government assets within the U.S. in payment of various loans and goods delivered by NOGA to the Russian Federation in 1991 and 1992. The asset being pursued by NOGA included the natural uranium component delivered under the HEU Agreement. As a result, on May 4, 2000, Russia halted shipments of low enriched uranium from the scheduled 2000 deliveries. However, on June 22, 2000, President Clinton

signed Executive Order 13159 which stated, "In order to ensure the preservation and proper and complete transfer to the Government of the Russian Federation of all payments due to it under the HEU Agreements,...hereafter be issued pursuant to this order, all property and interests in property of the Government of the Russian Federation directly related to the implementation of the HEU Agreements that are in the United States...are hereby blocked and may not be transferred, paid, exported, withdrawn, or otherwise dealt in." The Executive Order was issued on the basis that there was a threat to implementation of the HEU Agreement, which caused a national emergency and "constitutes an unusual and extraordinary threat to the national security and foreign policy of the United States..." Transactions under the HEU Agreement are now licensed pursuant to authorities of the Department of Treasury's Office of Foreign Assets Control. Deliveries of low enriched uranium to the United States were able to be resumed immediately.

USEC and Tenex Pending Contract Amendment

An amendment to the HEU Implementing Contract signed in November 1996 by USEC and Tenex specified a fixed contract price plus escalation for enrichment services purchased through 2001. Due to the decline of market prices in recent years, the contracted price that USEC pays Russia has become higher than the spot market price for enrichment services. The U.S. and Russian Federation have been working cooperatively during 2000 to try to find a solution so that the prices paid to the Russian Federation will better reflect market trends. As a part of that effort, the U.S. and Russian executive agents negotiated a proposed new amendment that would establish a different market-based price mechanism for deliveries post-2001. It also would address the purchase of the remaining 8.7 metric tons of HEU that was not delivered in 1999, and potentially add an additional 3.0 million SWU (a measure of the work required to enrich uranium) of commercial origin that would be purchased by USEC over a three-year period at a discounted price. The draft amendment is currently under review in both the U.S. and Russian governments.

Status of the Nuclear Fuel Markets:

All segments of the nuclear fuel market suffered from oversupply and a low level of prices during 2000. Congress and the Administration continue to have concerns about the domestic uranium mining, conversion services and enrichment services industry.

The following sections will address the state of the uranium, conversion services and enrichment services markets. It will provide a brief historical review as well as recent changes in the market landscape.

During 2000 the deliveries under the HEU Agreement has been a contributing factor to an adverse impact on the domestic uranium enrichment industry as well as by other factors such as exchange rates, corporate short term strategies focused on market share penetration at the expense of profits, and foreign competition. The domestic uranium and conversion industries have been less impacted by the HEU Agreement because the vast majority of the natural uranium component

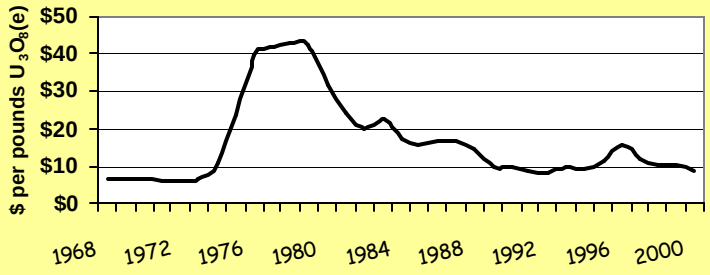
deliveries to date have either been purchased by the U.S. Government or returned to Russia and, therefore, removed from the market.

A larger contributing factor to the domestic uranium and conversion industries market decline has been the oversupply of uranium inventories from utilities and suppliers, including the substantial sales of uranium from USEC that was initially transferred by the Department of Energy during the USEC privatization process. The state of the market has also been affected by other significant factors as well. During 1999, for example, new mine production worldwide in 1999 was 81 million pounds out of world uranium requirements of 175 million pounds U_3O_8 (only 46 percent). The balance of 94 million pounds U_3O_8, or 54 percent of requirements, had been supplied from secondary sources.
These secondary sources include uranium from reprocessing, uranium from the enrichment of tails, and supplier and utility inventory reductions.

Uranium Mining

As is illustrated in Figure 3, the uranium mining industry has historically had significant fluctuations in price. During the mid-1970s, projections for new reactor construction was at an all-time high, and the price of uranium (measured in $/pound U_3O_8) reached a high of $43.23 in the early 1980s. As quickly as the price increased, it began its descent as the expected number of new reactors declined considerably compared to what had been anticipated. Also during the 1980s, U.S. utilities began to purchase considerable amounts of lower-cost uranium from foreign producers, particularly Canada and Australia. These new lower-cost producers have had the most profound effect on the price of uranium. The average annual price has remained around the $10 price throughout the 1990s, with the exception of a sharp increase in 1996 when significant demand came to the market and many long-term contracts were signed, in part, as a result of the Nuexco bankruptcy[4]. At the end of November 2000, the price has fallen to $7.10. In recent years, U.S. producers have struggled to survive the price decline that has occurred since 1996.

Figure 3. Average Annual Restricted Uranium Market Prices



Source: Trade Tech Exchange Values, 1968-2000

During 2000, U.S. and Canadian producers alike decreased their production. Power Resources Inc. (PRI)

[4]Nuexco, a trader/broker of uranium, primarily from the former Soviet Union, defaulted on several uranium contracts thus forcing those utilities to find alternate supplies with short leadtime. Nuexco filed for Chapter 11 bankruptcy protection in February 1995 due to its inability to pay debts of $400-$500 million owed to Russia, China and the United Kingdom (Uranium Institute News Briefing 95/9, February 28, 1995).

announced in September 2000 that it would suspend development activities at its Highland in-situ leach uranium project in Wyoming, beginning October 1. PRI will scale back production over the next three years from 700,000 pounds in 2001 to 500,000 pounds in 2002, and to 300,000 pounds in 2003. The announcement by PRI follows the decision by Uranium Resources Inc. (URI) to defer production in South Texas and New Mexico until the market improves.

The domestic uranium industry has been only minimally impacted by the HEU Agreement to date because the vast majority of the natural uranium component deliveries to date have either been purchased by the U.S. Government or returned to Russia and, therefore, removed from the market.

A larger contributing factor to the domestic uranium market decline has been the oversupply of uranium inventories from utilities and suppliers, including the substantial sales of uranium from USEC that was initially transferred by the Department of Energy during the USEC privatization process.

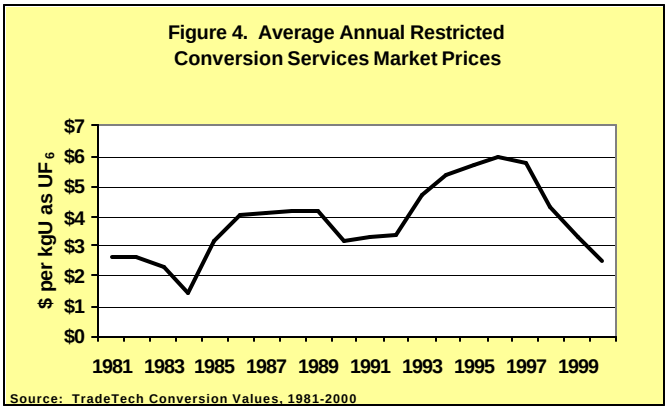
The state of the market has also been affected by other significant factors as well. During 1999, for example, new mine production worldwide in 1999 was 81 million poundsout of world uranium requirements of 175 million pounds U_3O_8 (only 46 percent). The balance of 94 million pounds U_3O_8, or 54 percent of requirements, had been supplied from secondary sources. These secondary sources include uranium from reprocessing, uranium from the enrichment of tails, and supplier and utility inventory reductions.

Suspension Agreements - In 1991, U.S. producers filed an antidumping suit with the Department of Commerce arguing that the Former Soviet Union (FSU) was selling uranium at prices that were below fair market value. As a result, the Department of Commerce signed initial agreements with Kazakhstan, Russia, and Uzbekistan in 1992 to suspend the antidumping suit (suspension agreements) by placing quotas on imports from these countries of the former Soviet Union. During 2000, there were significant events relating to suspension agreements that are expected to have a further impact on the uranium industry. In July 2000, the U.S. Department of Commerce issued its final decisions regarding its sunset review the U.S. Suspension Agreements with Russia and Uzbekistan. It ruled that the revocation of the uranium suspension agreements that the department signed with Russia and Uzbekistan would lead to a recurrence of dumping of uranium products in the U.S. The International Trade Commission (ITC) made its independent review in favor of maintaining the existing suspension agreement on imports of Russian uranium as removing the restrictions would probably lead to continuation or recurrence of material injury to the U.S. uranium industry. Separately, the ITC ruled that the proceedings on uranium imports from Uzbekistan and Ukraine should be lifted. Therefore, the existing suspension agreement with Uzbekistan was terminated and the existing antidumping order on imports of Ukrainian uranium were revoked. This follows the ITC's 1999 decision that the existing suspension agreement on imports of uranium from Kazakhstan should be lifted. As a result of increased access to the U.S. market by imports from the FSU, the uranium price is expected to experience further downward pressure.

Conversion Services

The conversion services market, like the uranium market, has suffered a decline in price. As seen in Figure 4, the price for conversion services was fairly stable from the late 1980s through the early 1990s. However, with the announcement of the closure of the Sequoyah Fuels' Facility in the early 1990s, the price moved upward and maintained at close to $6 per kilogram through 1997. After 1997, the price began its quick decline to around $2.35 in August 2000. However, in late 2000, the trend of declining price had been reversed. At the end of November 2000, the price for conversion services had risen to around $2.82 per kilogram.

There were various causes of the fall in price since 1997, which included sales of existing UF_6 inventories, drawdown of utility inventories, and to a lesser degree, the appearance of feed supplies from the U.S./Russia HEU Agreement.



Like the domestic uranium industry, the domestic conversion industry has been only minimally impacted by the HEU Agreement to date because the vast majority of the natural uranium hexaflouride component deliveries to date have either been purchased by the U.S. Government or returned to Russia and, therefore, removed from the market.

A larger contributing factor to the domestic conversion market decline has been the oversupply of natural uranium hexaflouride inventories from utilities and suppliers, including the substantial sales of natural uranium hexaflouride from USEC that was initially transferred by the Department of Energy during the USEC privatization process.

ConverDyn, the only U.S. converter, was not only impacted by the overall down turn in the market, but also suffered indirectly for two other reasons. Utilities' decision of who should supply their conversion services is typically decided by the converter's location relative to the location of their enrichment supplier. That being said, ConverDyn, the only U.S. converter, is highly dependent on USEC Inc. (USEC) sales of enrichment services. Since USEC has lost market share, in the enrichment market, as discussed in the following section, ConverDyn's business has experienced similar loss of market share. Another indirect, but less significant cause of ConverDyn's difficulty during 2000 is due to the continued strong U.S. dollar compared to the competitors in Canada and Europe.

During 2000 Western conversion capacity was at 81 percent, with ConverDyn only utilizing approximately 73 percent of its capacity. Although current capacity is actually in balance with demand, due to the low spot market price for conversion services and the plentiful inventories available, the remaining demand is being filled by inventories.

If the only U.S. converter were to be closed down, then the market price for conversion services would be expected to increase dramatically due to the reduced capacity available in the market. This increased price, in combination with potential increases in transportation costs for U.S. utilities could certainly impact the U.S. energy security.[5] Cameco Corporation, another North American converter, currently has limited conversion services capacity.

Uranium Enrichment

The uranium enrichment market, like the uranium and conversion services market has suffered from depressed market prices during 2000. Figure 5 illustrates the market price over more than 15 years. During the late 1980s, the spot market price began to decline considerably when Russia began to export enrichment services to the U.S. In October 1992, the Department of Commerce signed a suspension agreement with Russia which limited the import of enrichment services from Russia. The market price for uranium enrichment then began its rebound during the early to mid-1990s.

Since 1996, the enrichment market once again began to decline. The primary reasons for the downward turn in the market price has been primarily caused by global overcapacity, liquidation of inventories, including deliveries under the HEU Agreement, and increased competition among suppliers. Because the competition among enrichment suppliers seems to have been market-share versus profit motivated, the price has decreased in recent years. The maximum deliveries to USEC under the HEU Agreement equate to 5.5 million SWU, or about 50 percent of USEC's expected annual global sales.

Status of USEC - USEC's loss of market share during recent years can be attributed to an overall global overcapacity for production of uranium enrichment, aggressive competitor pricing, unfavorable currency exchange rates, and higher cost per separative work unit (this includes USEC production costs as well as the price paid to Russia under the HEU Agreement). During 2000 there were several events that affected the enrichment market and in particular USEC, including the announcement of the planned closure of USEC's Portsmouth gaseous diffusion plant in June 2001, the sunset review of the Suspension Agreement with Russia, and increased

U.S. Government focus on the stability of the domestic nuclear fuel market and the HEU Agreement.

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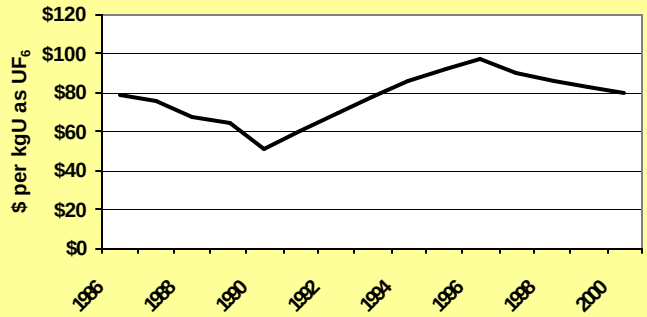
[5]ConverDyn's plant is in Metropolis, Illinois, across the Ohio River from the Paducah Gaseous Diffusion Plant leased by USEC.

USEC Announced Closure of Portsmouth - Due to a decrease in market share and an increase in purchases under the HEU Agreement, USEC has a capacity utilization of only 25 percent of its total operations (includes both the Portsmouth, Ohio, and Paducah, Kentucky plants). USEC announced in June 2000, that it would be closing the Portsmouth gaseous diffusion plant in June of 2001, which would increase its capacity utilization to 50 percent. According to their press release, the Portsmouth plant closure is expected to reduce USEC's fixed production costs by approximately $55 million in fiscal year 2002.

Nuclear Regulatory Commission Review - As as a result of the announced plant closure, Congress requested the Nuclear Regulatory Commission (NRC) to conduct a financial review of USEC in order to assure its ability to fulfill its legal requirement that it remain a reliable and economic domestic source of enrichment services. The NRC, in its public comment on its review, concluded that it would not deny USEC its certification because such an action would not serve the broader statutory purpose, which is to assure a stable, economic domestic source of enrichment supply.

Figure 5. Average Annual Restricted Enrichment Services Market Prices



Source: Trade Tech Values, 1986-2000

Suspension Agreements - On July 26, 2000, the U.S. International Trade Commission (ITC) voted to keep in place restrictions on imports of both natural and enriched uranium from Russia. Russia's ability to export to the United States enriched uranium continues to be limited. However, the proposed Tenex and USEC draft contract amendment under the HEU Agreement, as discussed earlier, has a provision that would allow Tenex to sell an additional 3.0 million SWU over a several-year period under a commercial arrangement separate and apart from the HEU Agreement. Such an agreement, if finalized, would require a change to the Suspension Agreement. The draft agreement is currently under consideration by the U.S. and Russian governments. Another pending issue that could affect the enrichment market is the possible import of a significant quantity of enriched uranium product (currently estimated to contain 2.2 million SWU) that was of Soviet origin, but that was located in Kazakhstan prior to the end of the Cold War. The U.S. Department of Commerce is expected to make a determination of whether such material could be directly imported into the U.S. by Kazakhstan (who is not subject to a suspension agreement) or whether it is considered as Russian and prohibited from being imported into the U.S. for consumption.

New Enrichment Technology - During 2000 USEC continued to consider various options for a new, lower-cost enrichment technology. Although USEC canceled development of their Atomic Vapor Laser Isotope Separation (AVLIS) program in 1999, it continued to pursue other options for new enrichment technology. During 2000 USEC paid an additional $2.5 million to Silex Systems Ltd. of Australia, for development of a laser-based technology for enriching uranium. This action was consistent with the Agreement of Cooperation between the U.S. and Australia. USEC has also been evaluating the gas centrifuge process as its new enrichment technology for the future. During 2000, USEC made inquires into purchasing shares of Urenco (one of its European competitors) or rights to utilize its centrifuge technology in the U.S. USEC also signed a Cooperative Research and Development Agreement with the Department of Energy to begin designing a new gas centrifuge based on the uranium enrichment technology developed by the Department in the 1980s.

The Secretary of Energy announced on October 6, 2000, that the Administration planned to further promote energy security by building an advanced technology demonstration plot plant for uranium enrichment in Piketon, Ohio. The Department also announced that it plans to place 3.0 million separative work units of enrichment capacity into cold standby at the soon-to-be closed Portsmouth gaseous diffusion plant. This capacity will be maintained in a condition to allow its restart in the event of a significant disruption in the nation's supply of enriched uranium and addresses objections stated by the Administration to USEC at the time of USEC's closure decision.

Paducah Gaseous Diffusion Plant - According to their public statements, USEC chose to keep the Paducah plant open because it offered long-term financial benefits, more attractive power price arrangements, greater operational flexibility and a history of reliable operations. Before USEC is able to rely solely on the Paducah plant for its domestic enrichment production, there are three primary issues that had to be addressed. First, the Paducah plant must be upgraded to enable it to increase its levels of enrichment from 2.75% ^{235}U to 5.5% ^{235}U. NRC must approve the plant upgrades and modify USEC's operating certificate. USEC plans to complete the upgrade activities by the end of 2000 and NRC's final approval is expected in early 2001. A second issue that had to be addressed includes the completion of installation of seismic modifications in July 2000, at Paducah, as required by the NRC. And third, USEC was able to negotiate a new agreement with the Tennessee Valley Authority (TVA) for the purchase of power for the Paducah plant. The agreement eliminates USEC's previous exposure to market price volatility during the summer months when high demand for electricity causes price spikes.

Conclusions and Actions Taken to Mitigate Impacts to Domestic Industry:

The uranium, conversion and enrichment services markets continue to experience downward pressure on prices and depressed market conditions. U.S. producers, as well as some foreign, have lowered or delayed production plans.

Deliveries under the HEU Agreement have been a contributing factor to an adverse impact on the domestic uranium enrichment industry as well as by other factors such as exchange rates, corporate short term strategies focused on market share penetration at the expense of profits, and foreign competition. The domestic uranium and conversion industries have been less impacted by the HEU Agreement because the vast majority of the natural uranium component deliveries to date have either been purchased by the U.S. Government or returned to Russia and, therefore, removed from the market.

A larger contributing factor to the domestic uranium and conversion industries market decline has been the oversupply of uranium inventories from utilities and suppliers, including the substantial sales of uranium from USEC that was initially transferred by the Department of Energy during the USEC privatization process.

DOE's purchase of the natural uranium component from the 1995-1998 deliveries under the HEU Agreement and the Department's agreement to stockpile 58 million pounds of uranium for 10 years is expected to help the market. In addition, the commercial agreement that was reached between Tenex and the Western consortium for the natural uranium feed deliveries should help to lessen potential market impacts of the HEU Agreement. As the natural uranium will be entering the market mostly through primary producers, quite possibly under existing contracts, impacts on the market prices will be minimized.

The enrichment services contained in the deliveries from the HEU Agreement have been absorbed into the enrichment market through USEC. Although the HEU Agreement is one factor partially responsible for reductions in employment at the gaseous diffusion plants and the decision on the part of USEC to shutdown its enrichment production at the Portsmouth Gaseous Diffusion Plant in June 2001, the combination of a highly competitive enrichment market and the cost reductions required to improve efficiencies, as well as USEC management policies and actions, have also been factors. The strength of the U.S. dollar has continued to provide the foreign enrichment suppliers with an edge to be more competitive, especially in the U.S. market, which has further pushed the market price downward.

The Administration, like Congress, is concerned about the state of the domestic uranium, conversion and enrichment industries. Over the past year, the Department has been working diligently to assess these vital industries and work with Congress and private industry to bring about change for the better and a path forward to continued reliable, competitive and assured U.S. supply of nuclear fuel services.

To mitigate the effects of a possible disruption in the Nation's supply of enriched uranium, Energy Secretary Richardson announced in October 2000 the Administration's plans to build an advanced

technology demonstration enrichment plant in Portsmouth, Ohio as well as the placement of a part of the Portsmouth Gaseous Diffusion Plant on standby for a five-year period. These actions are essential to long-term U.S. energy security. In addition, these actions will preserve jobs and provide the U.S. with a new enrichment technology needed to meet its national needs and international commitments.

The Department also continues to review the issues impacting the uranium mining and conversion industries. The results of the Department's review will be contained in the *Report to Congress on Maintenance of Viable Domestic Uranium, Conversion, and Enrichment Industries*.